

## ELECTRONIC HYBRIDIZATION ASSAY AND SEQUENCE ANALYSIS

### ABSTRACT OF THE DISCLOSURE

5           An electronic hybridization assay implements a hybridization reaction, or a  
sequence analysis, on sequences representative of the sequences of the molecules under  
examination to provide an output representative of a chemical hybridization reaction. An  
electronic hybridization machine implements a correlation algorithm where the  
correlation output provides information regarding the relationship between the molecules  
10 under examination. In one aspect, the degree of similarity between the molecules is  
indicated by the correlation output value. In another aspect, a locus of similarity between  
the molecules is indicated by a maximum value in the correlation output sequence. In a  
particular aspect, the sequences are encoded in an optimized format to optimize the  
operation of the operation of the electronic hybridization machine.